



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/518,385	12/29/2004	Roberto Lanfredi	262956US0X PCT	8970
22850 7590 09/04/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER LISTVOYB, GREGORY	
			ART UNIT 1711	PAPER NUMBER
			NOTIFICATION DATE 09/04/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

## Office Action Summary

Application No.

10/518,385

Applicant(s)

LANFREDI ET AL.

Examiner

Gregory Listvoyb

Art Unit

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-8 and 10-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8 and 10-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 3/3/2005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION*****Election/Restrictions***

Newly submitted claim 15, 18 and 19 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the addition of an amine containing coating present on the surface of the bead between the surface of the bead and the anti-lumping additive requires an additional step of the original process (i.e. distributing amine-containing component before adding anti-lumping additive).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 15, 18 and 19 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Rejections - 35 USC § 103***

Claims 1, 3, 5 rejected under 35 U.S.C. 103(a) as being unpatentable by Rubens et al (US 3086347, necessitated by the amendment) herein Rubens in combination with Alvares et al (US patent 3991020) herein Alvares.

Rubens discloses beads of expandable vinylaromatic polymers comprising: consisting of

Art Unit: 1711

- a) a matrix obtained by polymerizing 50-100% by weight of one or more vinylaromatic monomers and 0-50% by weight of at least one copolymerizable monomer (see Column 4, line 35);
- b) an expanding agent englobed in the polymeric matrix
- c) Ferric Oxide (Fe is in Group VIIIB, see Column 3, line 25).

Note that Rubens does not particularly limits the amount of Ferric Oxide in his applications. However, he treated the surface of a polymer beads with Fe powder (used for the same purposes) at amount of 1% (see Column 3, line 70). In order to keep amount of Fe in the surface, the amount of Oxide in the surface should be higher than 1%, but lower than 2% (based on the fact that MW of Fe is 56 and MW of Oxygen is only 16 and their ratio in the Oxide is 3:4).

Since Rubens uses the same material as one in the Application (Ferric Oxide), it inherently has the anti-lumping properties.

Regarding claim 3, Rubens discloses beads with 1.4 mm in diameter.

Rubens does not disclose amount of the blowing agent in his composition.

Alvares discloses beads of expandable vinylaromatic polymers (i.e. polystyrene, abstract) comprising:

Art Unit: 1711

a) a matrix obtained by polymerizing 50-100% by weight of one or more vinylaromatic monomers (Examples 1-2)

b) 1-10% by weight, calculated with respect to the polymer (a), of an expanding agent englobed in the polymeric matrix (8 wt % of pentane/isopentane mixture, which boiling point is within the range of 10-100C).

(c) 0.07% of Zn Stearate as an antilumping agent.

Alvares process aims to obtain beads with diameter of 0.1-5 mm, which is common for expandable polystyrene particles. This size is directly depends on the amount of blowing agent in the composition.

Rubens obtains beads with 1.4 mm diameter (see Example 2) with 12 % Freon as a blowing agent. Since Freon is prohibited for use in industry, it should be replaced with another blowing agent. Since Alvares's and Rubens's beads have the same size range, the Ruben's blowing system can be replaces Alvares's one.

Therefore, it would have been obvious to a person of ordinary skills in the art to use 1-10% of expanding agent , such as pentane/isopentane in Rubens's composition in order to replace Freon, making environmentally friendly composition.

Art Unit: 1711

Claim 2 rejected under 35 U.S.C. 103(a) as being unpatentable over Rubens in combination with Harclerode et al (US patent 5240657, cited in the previous Office action) herein Harclerode as evidenced by Merck.

Rubens discloses beads of expandable vinylaromatic polymers comprising Polystyrene beads, blowing agent and Ferric oxide in the surface of the beads (see discussion above).

Rubens does not disclose a molecular weight of his polymer.

Harclerode discloses a system comprising

a) a matrix obtained by polymerizing 50-100% by weight of one or more vinylaromatic monomers (Example 1) with molecular weight Mw within the range of 200000-220000 (Column 19, line 52) at the presence of suspending agent, initiating agent and expanding agent (Examples 1 and 2),

b) 1-10% by weight, calculated with respect to the polymer (a), of an expanding agent englobed in the polymeric matrix (3.1% g of pentane, Example 2).

(c) 0.12% of Zn Stearate (Example 2).

Harclerode teaches that molecular weight characteristics (MW and MWD) his expanded polystyrene is important to improve processability. The use of polymer with certain MW and MWD characteristics allows to make a process more economical, for example, by reducing an amount of blowing agent required.

Art Unit: 1711

Therefore, it would have been obvious to a person of ordinary skills in the art to use Polystyrene with Molecular Weight of 200-220K in order to make more economically and environmentally sound process.

Claims 1, 5- 8, 10-14 and 16-17 rejected under 35 U.S.C. 103(a) as being unpatentable by Tang et al (US 2004/0121101, necessitated be the amendment) herein Tang in combination with Mason et al (US patent 6197233) herein Mason.

Tang discloses

a) a matrix obtained by polymerizing about 100% Polystyrene with suspending agent, initiating agent and expanding agent (see lines 0030-0035), in form of 1-2 um diameter beads.

b) 6% by weight, calculated with respect to the polymer (a), of an expanding agent englobed in the polymeric matrix (se line 0034).

Regarding claim 1 (c) Tang discloses treatment of the beads with colorants, such as Iron Oxide and Zink Oxide (see line 0043).

Since Tang uses the same material as one in the Application (Iron Oxide and Zink Oxide), it inherently has the anti-lumping properties.

Art Unit: 1711

Tang does not disclose the amount of the above colorants in the composition.

Mason discloses polystyrene based foam having 0.6%wt of colorant present (see Example 2).

Therefore, it would have been obvious to a person of ordinary skills in the art to use Iron Oxide and Zink Oxide colorants at amount of about 0.6% based on a polymer weight, since it sufficient to effectively distribute color on the beads.

It is known that Iron Oxide and Zink Oxide in the form of fine powder It would be obvious to a person with ordinary skills in the art to use very fine powder of Zn Stearate (i.e. 0.1-5 um) in order to cover more bead surface at the same weight of the additive.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-10 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.**

Art Unit: 1711

See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory Listvoyb whose telephone number is (571) 272-6105. The examiner can normally be reached on 9am-6pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571) 272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1711

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Listvoyb  
Examiner  
Art Unit 1711

GL  
\*\*\*



James J. Seidleck  
Supervisory Patent Examiner  
Technology Center 1700